

WHAT IS CLAIMED IS:

1. A method of preventing charging, comprising the

steps of

irradiating a sample mounted on a sample holder

5 with a charged particle beam emitted from a charged
particle beam source, and

applying a predetermined voltage to an

electrode for preventing charging disposed near a
surface of said sample holder to generate an induced

10 current between the electrode for preventing charging
and an irradiated area in which charging occurs in said
sample, thereby executing a control of preventing said
charging without contact with said sample.

15 2. A method of preventing charging, comprising the
steps of

irradiating a sample mounted on a sample holder
with a charged particle beam emitted from a charged
particle beam source,

20 applying a predetermined voltage to an
electrode for preventing charging disposed near a
surface of said sample holder, and

making said electrode come into contact with
said sample to generate a current between said

25 electrode for preventing charging and an irradiated
area in which charging occurs in said sample, thereby
executing a control of preventing said charging.

3. The method of preventing charging according to
claim 2, wherein the surface of said sample is observed
with said charged particle beam, said electrode for
preventing charging is made come into contact with the
5 periphery of said irradiated area, and said charging
preventing control is performed.

4. The method of preventing charging according to
claim 1, wherein said electrode for preventing charging
10 is constructed so as to be movable with respect to the
surface of said sample.

5. The method of preventing charging according to
claim 2, wherein said electrode for preventing charging
15 is constructed so as to be movable with respect to the
surface of said sample.

6. The method of preventing charging according to
claim 1, wherein a voltage of -5V to +5V is applied to
20 said electrode for preventing charging.

7. The method of preventing charging according to
claim 2, wherein a voltage in a range of -5V to +5V is
applied to said electrode for preventing charging.

25

8. The method of preventing charging according to
claim 1, wherein said sample contains an insulating
material.

9. The method of preventing charging according to claim 2, wherein said sample contains an insulating material.

5

10. The method of preventing charging according to claim 3, wherein said sample contains an insulating material.

10 11. A method of preventing charging, comprising the steps of

irradiating a sample containing an insulating material with a charged particle beam, and

15 applying a predetermined voltage to an electrode for preventing charging disposed near a surface of said sample holder to thereby perform a control of preventing said charging which occurs in an irradiated area in said sample without making said electrode come into contact with said sample.

20

12. An apparatus for a charged particle beam, having: a charged particle source; a charged particle optical system for focusing and deflecting a charged particle beam emitted from said charged particle source; a detector for detecting secondary particles emitted from a sample irradiated with said charged particle beam; and a sample holder on which said sample is mounted, the apparatus comprising:

an electrode for preventing charging which is provided so as to be movable with respect to the surface of said sample holder; and

5 a controller for the electrode for preventing charging, for controlling a voltage to be applied to said electrode for preventing charging and said movement,

10 wherein a control for preventing said charging is performed by generating an induced current or a current between an irradiated area in said sample, which is irradiated with said charged particle beam, and said electrode for preventing charging.

13. The apparatus for a charged particle beam
15 according to claim 12, wherein said electrode for preventing charging is disposed between said charged particle optical system and said sample holder and is provided movably with respect to the surface of said sample holder.

20